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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/731,118	12/10/2003	Toshihiro Mori	03560.003411.	4655

5514 7590 06/15/2006

FITZPATRICK CELLA HARPER & SCINTO  
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NEW YORK, NY 10112

EXAMINER
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STEPHENS, JUANITA DIONNE

ART UNIT	PAPER NUMBER
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2853

DATE MAILED: 06/15/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/731,118

Applicant(s)

MORI, TOSHIHIRO

Examiner

Juanita D. Stephens

Art Unit

2853

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on Election filed 3/28/2006.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☐ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) 12-14 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3, 5-11 is/are rejected.
- 7) ☒ Claim(s) 4 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 December 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>1/29/2004</u> . | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Election/Restrictions***

1. Applicant's election without traverse of Group I, claims 1-11 in the reply filed on 3/28/2006 is acknowledged.
2. Claims 12-14 withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 3/28/2006.

**With respect to the Applicant request of rejoining of the nonelected process claims 12-14 in the event that the elected product claims are deemed allowable, the Applicant is encouraged to present the process claims as dependent claims, in the application at an early state of prosecution (MPEP 821.04).**

### ***Drawings***

3. Figures 15A, 15B, 15C and 16 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

4. The drawings are objected to **because on Figure 13, there are four reference lines on the bottom which indicate the same structure, however the first two are H1015 (groove) and the second two are H1105, but reference number H1105 represents a different structure (stud bump).** Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

#### ***Specification***

5. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1-3, 5-7, and 9 are rejected under 35 U.S.C. 103(a) as being obvious over Mori (US 6,609,782 B2) in view of Shoji (US 5,869,904).

The applied reference has a common assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art only under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 103(a) might be overcome by: (1) a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not an invention "by another"; (2) a showing of a date of invention for the claimed subject matter of the application which corresponds to subject matter disclosed but not claimed in the reference, prior to the effective U.S. filing date of the reference under 37 CFR 1.131; or (3) an oath or declaration under 37 CFR 1.130 stating that the application and reference are currently owned by the same party and that the inventor named in the application is the prior inventor under 35 U.S.C. 104, together with a terminal disclaimer in accordance with 37 CFR 1.321(c). This rejection might also be overcome by showing that the reference is disqualified under 35 U.S.C. 103(c) as prior art in a rejection under 35 U.S.C. 103(a). See MPEP § 706.02(l)(1) and § 706.02(l)(2).

Mori discloses a liquid ejection head (Fig. 6 and 1C) for ejecting a liquid through an ejection orifice comprising: **1)** a recording device board (H1100) including an energy generating device (4, H1103) disposed thereon to generate energy for ejecting the liquid through the ejection orifice (H1108), **2)** an electrode pad (7) disposed in a recess (17) formed in the recording device board, the electrode pad being electrically communicated with the energy generating device, **3)** an electrode lead (13) for supplying power to the electrode pad externally of the recording device board, **4)** a bump (14) for connecting the electrode pad and the electrode lead to establish electrical communication therebetween (col 9, lns 33-36), **5)** a sealing resin material (18, 19) filled in the recess to surround an electrically connected portion between the electrode pad and the bump (col 10, lns 9-16, lns 36-40), **6)** wherein the sealing resin (18) material is a thermosetting resin material having elasticity even after hardening (col 10, lns 18-21), and another sealing resin material, (19) which is another kind of thermosetting resin material having rigidity after hardening, is applied on the first mentioned sealing resin material to cover the bump and the electrode pad (col 10, lns 36-40), **7)** wherein a portion of the bump electrically connected to the electrode lead is projected from the recess (as shown in Fig. 1C), **8)** wherein the first mentioned sealing resin material is a thermosetting silicon denatured epoxy resin (col 10, lns 18-21), and **9)** wherein the last mentioned another sealing resin material is a thermosetting epoxy resin (col 10, lns 36-40).

Mori does not disclose wherein the bump has an affinitive area having affinity with the sealing resin material and formed nearer to a connection surface thereof to the

electrode pad, and a repellent area having a lower affinity with the sealing resin material and formed nearer to a connection surface thereof to the electrode lead. Shoji discloses wherein the bump (14) has an affinitive area having affinity with the sealing resin material and formed nearer to a connection surface thereof to the electrode pad (13c)(the reinforcement film is provided on the base of the bump), and a repellent area having a lower affinity with the sealing resin material and formed nearer to a connection surface thereof to the electrode lead (as seen in Fig. 5). It would have been obvious at the time the invention was made to a person having ordinary skill in the inkjet art to modify Mori by providing the bump as taught to be old by Shoji for the purpose of maintaining mechanical and electrical reliability.

8. Claims 8 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mori (US 6,609,782 B2) in view of Shoji (US 5,869,904) as applied to claims 1-3, 5-7, and 9 above, and further in view of JP 62-283644.

Mori in view of Shoji discloses the claimed invention, with the exception of wherein the bump is formed such that a cross-sectional area of the bump parallel to the principal face of the electrode pad is larger in a portion of the bump nearer to a connection surface thereof to the electrode lead than in a portion of the bump nearer to a connection surface thereof to the electrode pad. JP 62-283644 discloses wherein the bump (3) is formed such that a cross-sectional area of the bump parallel to the principal face of the electrode pad is larger in a portion of the bump nearer to a connection surface thereof to the electrode lead than in a portion of the bump nearer to a connection surface thereof to the electrode pad (as shown on Fig. 5a-c). It would have

been further obvious at the time the invention was made to a person having ordinary skill in the inkjet art to modify Mori in view of Shoji by providing the bump as taught to be old by JP 62-283644 for the purpose of improving throughput of a semiconductor device.

9. Claim 11 is rejected under 35 U.S.C. 103(a) as being obvious over Mori (US 6,609,782 B2) in view of JP 62-283644.

The applied reference has a common assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art only under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 103(a) might be overcome by: (1) a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not an invention "by another"; (2) a showing of a date of invention for the claimed subject matter of the application which corresponds to subject matter disclosed but not claimed in the reference, prior to the effective U.S. filing date of the reference under 37 CFR 1.131; or (3) an oath or declaration under 37 CFR 1.130 stating that the application and reference are currently owned by the same party and that the inventor named in the application is the prior inventor under 35 U.S.C. 104, together with a terminal disclaimer in accordance with 37 CFR 1.321(c). This rejection might also be overcome by showing that the reference is disqualified under 35 U.S.C. 103(c) as prior art in a rejection under 35 U.S.C. 103(a). See MPEP § 706.02(I)(1) and § 706.02(I)(2).

Mori discloses recording device board used in a liquid ejection head (Fig. 6 and 1C) for ejecting a liquid through an ejection orifice, and including an energy generating



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device (H1103) disposed thereon to generate energy for ejecting the liquid through the ejection orifice (H1108) with electric power supplied from an electrode lead (13), the recording device board comprising: **1)** an electrode pad (7) disposed in a recess (17) formed in the recording device board, the electrode pad being electrically communicated with the energy generating device, **2)** a bump (14) for receiving power supplied to the electrode pad through the electrode lead externally of the recording device board (col 9, lns 33-36).

Mori does not disclose wherein the bump is formed such that a cross-sectional area of the bump parallel to the principal face of the electrode pad is larger in a portion of the bump nearer to a connection surface thereof to the electrode lead than in a portion of the bump nearer to a connection surface thereof to the electrode pad. JP 62-283644 discloses wherein the bump (3) is formed such that a cross-sectional area of the bump parallel to the principal face of the electrode pad is larger in a portion of the bump nearer to a connection surface thereof to the electrode lead than in a portion of the bump nearer to a connection surface thereof to the electrode pad (as shown on Fig. 5a-c). It would have been obvious at the time the invention was made to a person having ordinary skill in the inkjet art to modify Mori by providing the bump as taught to be old by JP 62-283644 for the purpose of improving throughput of a semiconductor device.

***Allowable Subject Matter***

10. Claim 4 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

**Contact Information**

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Juanita D. Stephens whose telephone number is (571) 272-2153. The examiner can normally be reached on Flex.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Meier can be reached on (571) 272-2149. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a

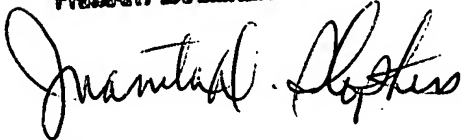
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USPTO Customer Service Representative or access to the automated  
information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

**JUANITA D. STEPHENS**  
**PRIMARY EXAMINER**

A handwritten signature in black ink, appearing to read "Juanita D. Stephens", written in a cursive style.

Juanita D. Stephens  
Primary Examiner  
Art Unit 2853

JDS

June 8, 2006